

OCEANS

Five great oceans cover 70% of our planet. They affect our history, and they are very important to our life today.

This book looks at the plants and animals that live in these oceans. It also points out the importance of protecting them, and how we should do this.

StandFor Graded Readers provide a range of engaging reading materials for learners of English. Carefully graded by level, the series includes retellings of great classics, and informative, factual titles.

Level 1 | 380 Headwords

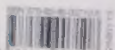
Level 2 | 580 Headwords

Level 3 | 800 Headwords

Level 4 | 1000 Headwords



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TEACHER'S BOOK

OCEANS

Robert Quinn

3

CIL
Content
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**Biggles Breaks
the Silence**

A photograph of three dolphins leaping from the water, captured in mid-air. The dolphins are dark grey with lighter underbellies. The water is a deep blue with white foam from the splash. The background is a bright, overexposed sky.



1 Match the oceans with the numbers (1-5) on the map.

- a. Arctic Ocean 4
- b. Atlantic Ocean 2
- c. Indian Ocean 5
- d. Pacific Ocean 1
- e. Southern Ocean 3

2 Answer the questions about the map.

1. Which ocean is between Africa and the Americas?

Atlantic Ocean

2. Which two oceans are probably the coldest?

Arctic Ocean and Southern Ocean

3. Which ocean is to the south of the Asian continent?

Indian Ocean

4. Which ocean looks bigger – the Pacific or the Atlantic?

Pacific Ocean

5. Which continent only borders on two oceans?

Europe

Earth's Oceans

From space, Earth looks very blue because there is a lot of water on its surface. There are five oceans that cover about 70% of the planet. They are the Pacific Ocean, the Atlantic Ocean, the Indian Ocean, the Arctic Ocean, and the Southern Ocean. These oceans hold about 97% of Earth's water, but it is salt water so we cannot drink it. The other 3% of Earth's water is fresh water. It isn't salty so people can drink it. We find fresh water in lakes, in rivers, and under the Earth's surface.

The Pacific Ocean is the largest ocean in the world. It covers 155.5 million km^2 . That is about five times bigger than the continent of Africa. The northern part of the Pacific Ocean is between Asia and North America. The southern part of the Pacific Ocean is between Australia and South America.

The second largest ocean in the world is the Atlantic Ocean. It covers 76.8 million km^2 . That is about four times bigger than the continent of South America. The Atlantic Ocean is between North and South America in the west, and Africa and Europe in the east.



Earth is our planet

The Indian Ocean is the third largest ocean in the world. It is south of Asia, between the continents of Africa and Australia. The Indian Ocean covers 68.6 million km^2 . That is about four times bigger than Russia.

The world's next largest ocean is the Southern Ocean, around the continent of Antarctica. The Southern Ocean covers 20.3 million km^2 . That is about twice as big as Europe.

Finally, the Arctic Ocean is the smallest ocean in the world. It covers 14.1 million km^2 around the North Pole. That is about seven times bigger than the island of Greenland.

How much of Earth's surface do the five oceans cover?

Oceans	%
Pacific	30.5%
Atlantic	15.1%
Indian	13.5%
Southern	4.0%
Arctic	2.8%

Earth's Oceans

1

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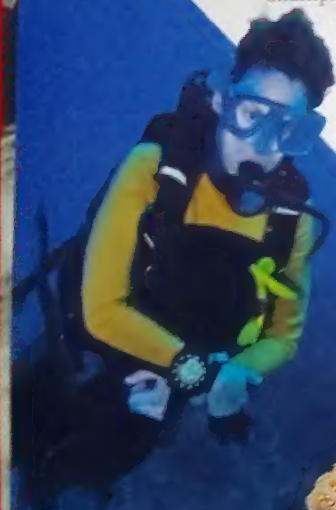
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Oceans	%
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Atlantic	15.1%
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Southern	4.0%
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In some places, oceans are very shallow. We can see the bottom easily when we go swimming or diving. The ocean is often shallow near the coast of a continent. This area is called the continental shelf.

In tropical oceans, we often find coral reefs in shallow water. In these areas, the water is warm and lots of sunlight shines through the water to the ocean floor. As a result, many plants and animals can live in these areas.

In other places, the ocean is very deep. For example, in the middle of the Pacific, the ocean floor is thousands of meters under the water. At the bottom, there is no sunlight and it is very cold, so plants cannot grow there.



The deepest underwater place in the world is Challenger Deep. It is in the Pacific Ocean, about 11,000 meters under the water. Challenger Deep is at the bottom of a very deep place called the Mariana Trench.

In 1960, two scientists wanted to visit Challenger Deep. They used a special ship called a bathyscaphe. It took them four hours and forty-seven minutes to go down to the bottom of the trench. In 2012, the film director James Cameron visited Challenger Deep in a ship called *Deepsea Challenger*. Then he made a film about the trench.

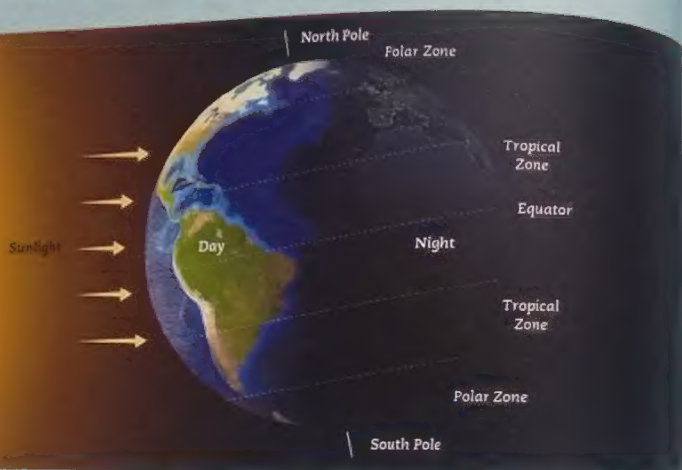
There are also very big mountains under the ocean. The biggest is Mauna Kea, on the island of Hawaii. It is 10,000 meters tall, from the ocean floor to the top of the mountain. About 5,800 meters of the mountain are under water.

The world's longest mountain range is under water, too. It's called the Mid-Atlantic Ridge and it's about 16,000 kilometers long. This mountain range goes down the middle of the Atlantic, from the Arctic Ocean to the Southern Ocean.



Oceans and Weather

Chapter 2



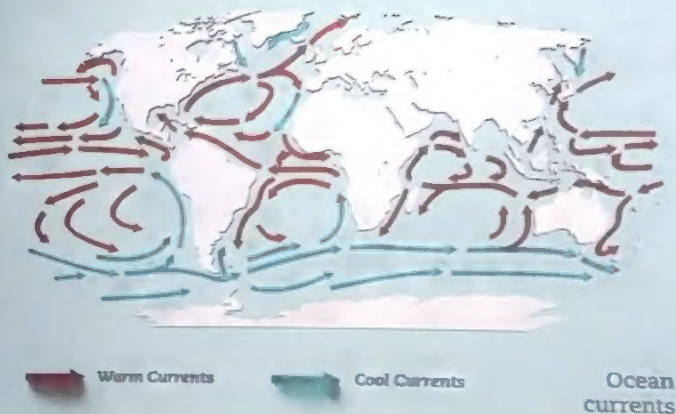
Oceans are important to weather around the world. For example, oceans can affect temperature, rain, and winds.

During the day, the sun shines on the oceans. The water becomes warmer, especially in the shallow areas near continents. In deeper areas, only water near the surface gets warm, but water near the bottom stays cold. At night, the surface of the ocean gets colder when the heat goes up into the air. These changes in temperature affect the weather on land, especially near the coast.

The areas near Earth's Equator are called the Tropics. They get more sunlight all year, so the ocean is warmer there. The areas near the North Pole and the South Pole are called polar zones. They are far from the Equator,

so they don't get as much sunlight. Because of this, ocean water is much colder in the polar zones.

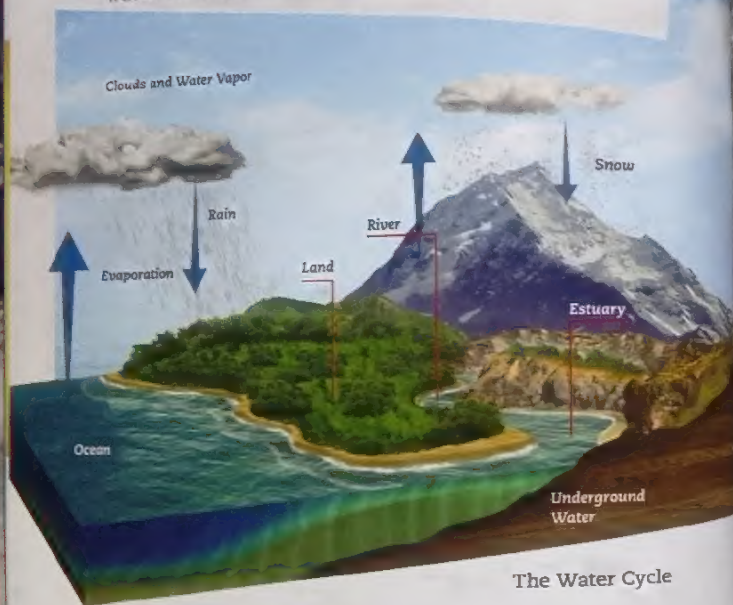
Differences in temperature can move the water in the ocean and make currents. Warm ocean currents usually move from the tropical zones toward the North Pole or the South Pole. Cold ocean currents usually move from the polar zones toward the Equator. Strong winds can also make ocean currents.



Some ocean currents can affect the weather far from the coast. For example, the Gulf Stream is a very strong current in the Atlantic Ocean. It takes warm water from the Gulf of Mexico to the Arctic Ocean. The Gulf Stream has a very important effect on Western Europe. It makes the weather warmer there, especially during the winter.

In the South Atlantic, there is an ocean current called the Brazil Current. It takes warm water south, along the eastern coast of Brazil, and on to Argentina. There is also a North Brazil Current along the northeast coast of Brazil. It takes warm water from the Equator towards the Caribbean Sea.

Oceans also affect weather because they are part of the water cycle. When ocean water is warm, it evaporates. This means water vapor goes into the air and makes clouds. When the air gets colder, the vapor makes drops of water. The largest drops fall down as rain or snow.



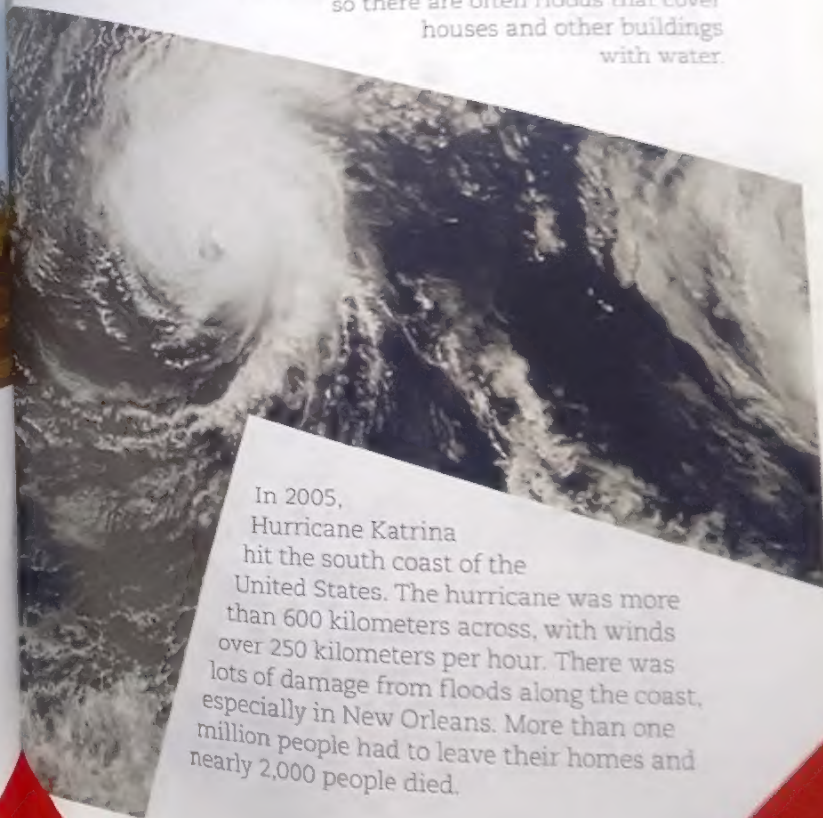
The Water Cycle

Around the world, most rain falls back into the ocean, but some falls on land, too. When that happens, some of the water goes into lakes and under the ground. Some of the water goes into rivers and then back to the ocean.

Every year, there are many storms over the oceans. The biggest storms are called hurricanes, but they have other names in some places. In Southeast Asia, hurricanes are called typhoons, while people in India call them tropical cyclones.

Hurricanes usually start over warm water in tropical areas. Winds come from many places and the air turns in circles. Warm water vapor goes high into the air and makes clouds. In the center of the hurricane, there is a place without any wind or rain. It's called the eye of the hurricane.

Hurricane winds are very fast – between 120 and 240 kilometers per hour. When hurricanes come to land, they can cause lots of damage to trees, roads, houses, and other buildings. Hurricanes also bring lots of rain, so there are often floods that cover houses and other buildings with water.



In 2005, Hurricane Katrina hit the south coast of the United States. The hurricane was more than 600 kilometers across, with winds over 250 kilometers per hour. There was lots of damage from floods along the coast, especially in New Orleans. More than one million people had to leave their homes and nearly 2,000 people died.

Waves and Tides

When winds move over the ocean, they push the water and make waves on the surface, at the top of the water. Light winds make very small waves, called ripples. These small waves are only a few centimeters high and they go away when the wind stops.

Strong winds make large waves on the ocean. These waves can become very big when the wind blows for a long time. During hurricanes, the largest waves can be more than 25 meters high.

Large waves do not go away when the wind stops. These waves are called swells, and they get smaller after a long time, or stop when they come to land. When swells come to shallow water, they get higher and closer together. The water at the bottom slows down quickly. At the same time, the water at the top keeps moving. Finally, the top of the wave falls and breaks on the land.

Sometimes there are very big waves, called tsunamis. Winds don't start tsunamis. They happen when there is an earthquake under the ocean. The earthquake pushes a lot of water and makes a very big wave that travels through the ocean. In deep water, tsunamis can travel at 800 kilometers per hour. That is faster than most airplanes.

Waves in shallow water



When a tsunami comes to shallow water, it slows down very quickly and becomes much higher. When the wave finally breaks on the land, it causes lots of damage. In 2004, there was a big tsunami in the Indian Ocean. Thousands of people died and millions of people lost their homes.

When you are at the beach, you can see how the ocean gets higher and lower at different times of day. At high tide, the water goes up to its highest point, and at low tide it goes back down to its lowest point. This happens because of the Moon and its gravity.



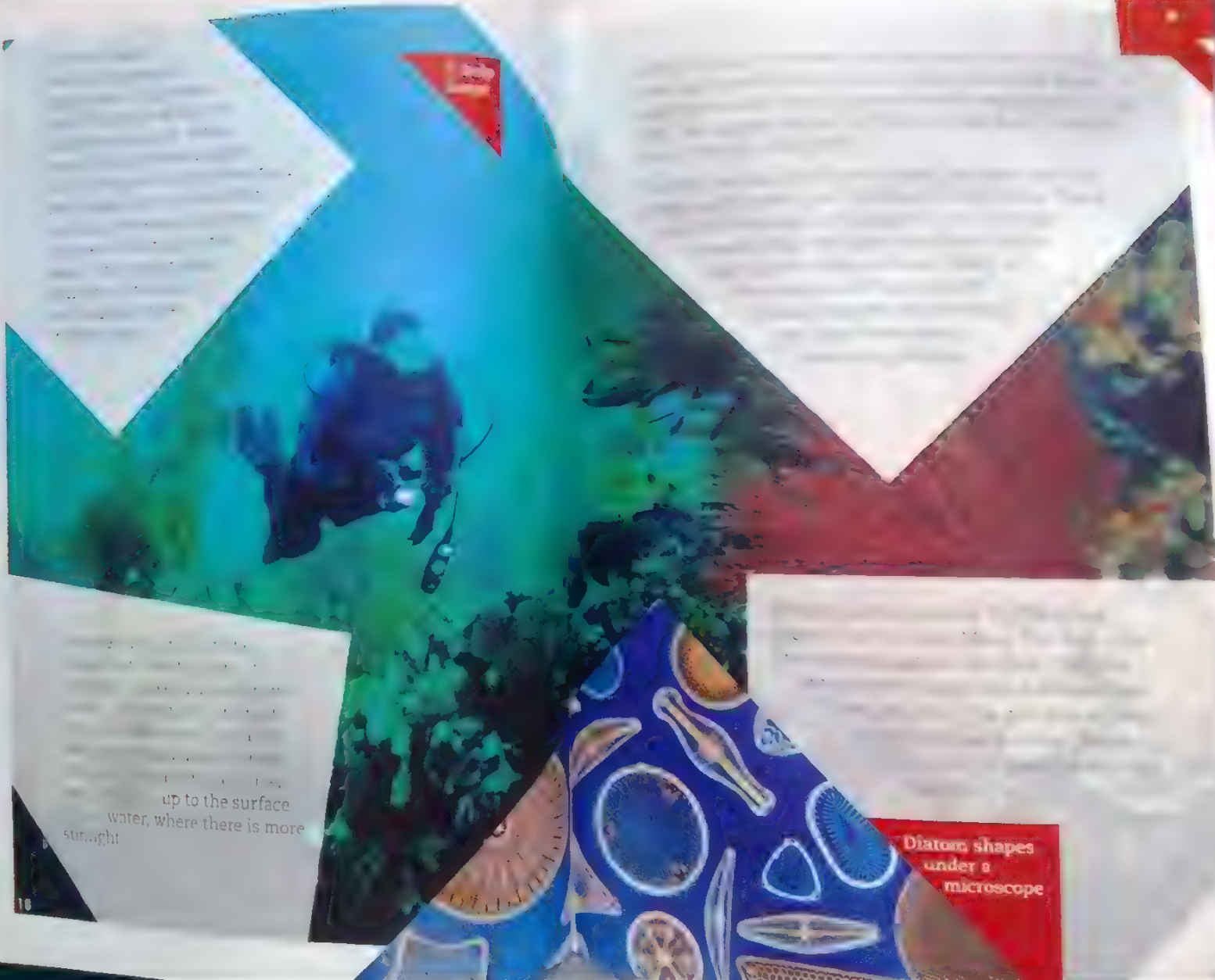
At high tide, the ocean level goes up on two sides of the planet. On one side, the ocean goes up because the Moon's gravity pulls the water away from Earth. On the other side, the ocean goes up because the Earth turns very quickly. At the same time, there are low tides on the other two sides of the planet. In most places around the world, there are two high tides and two low tides every day.

The Sun's gravity also affects the tides. When the Sun, the Moon, and Earth are in a line their gravities add together and the high tide becomes very high. These are called spring tides and they happen every two weeks, when there is a new Moon, and when there is a full Moon.

Seagrass, Seaweed, and Algae

Chapter
4

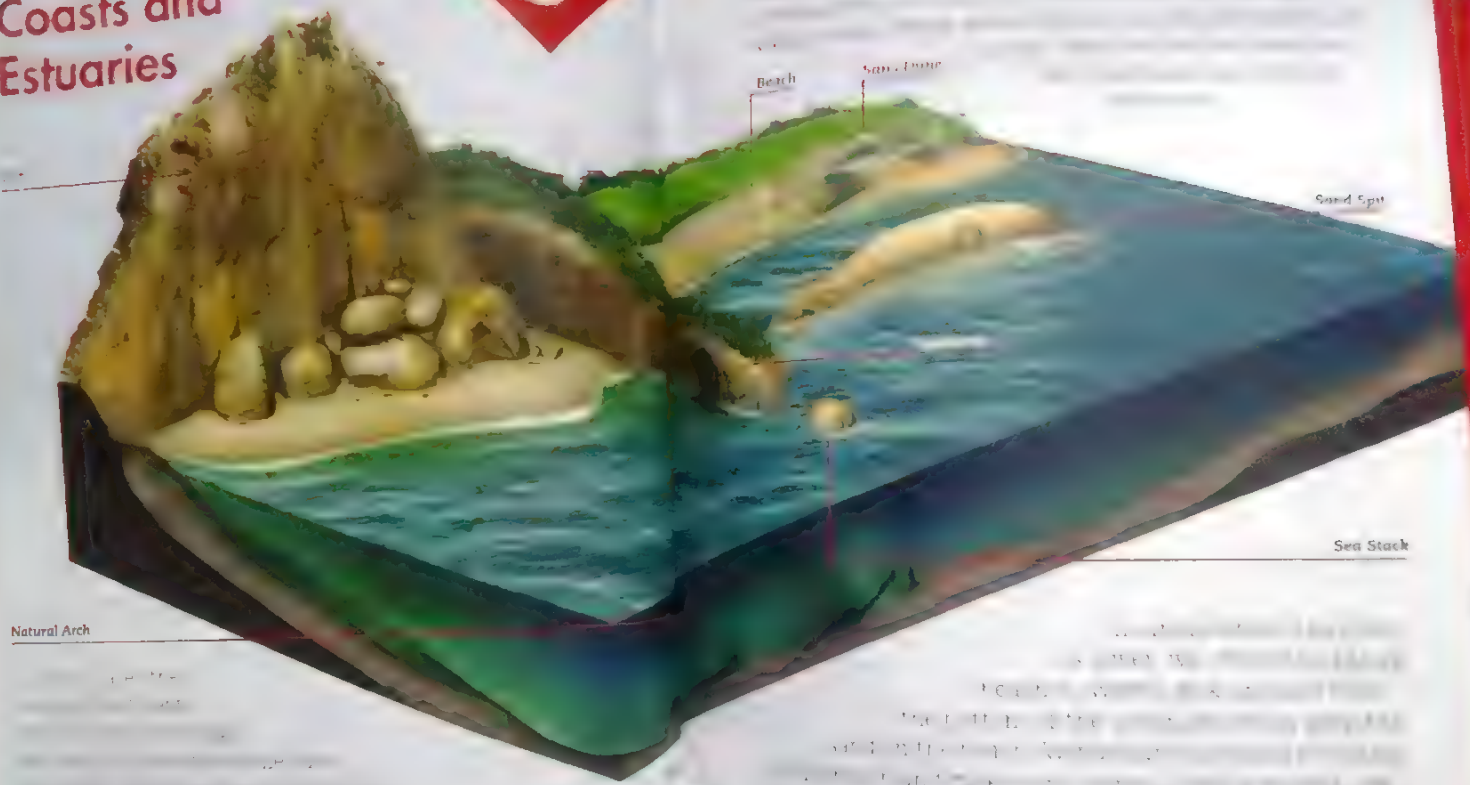




up to the surface
water, where there is more
sunlight

Diatom shapes
under a
microscope

Coasts and Estuaries



Natural Arch

Beach

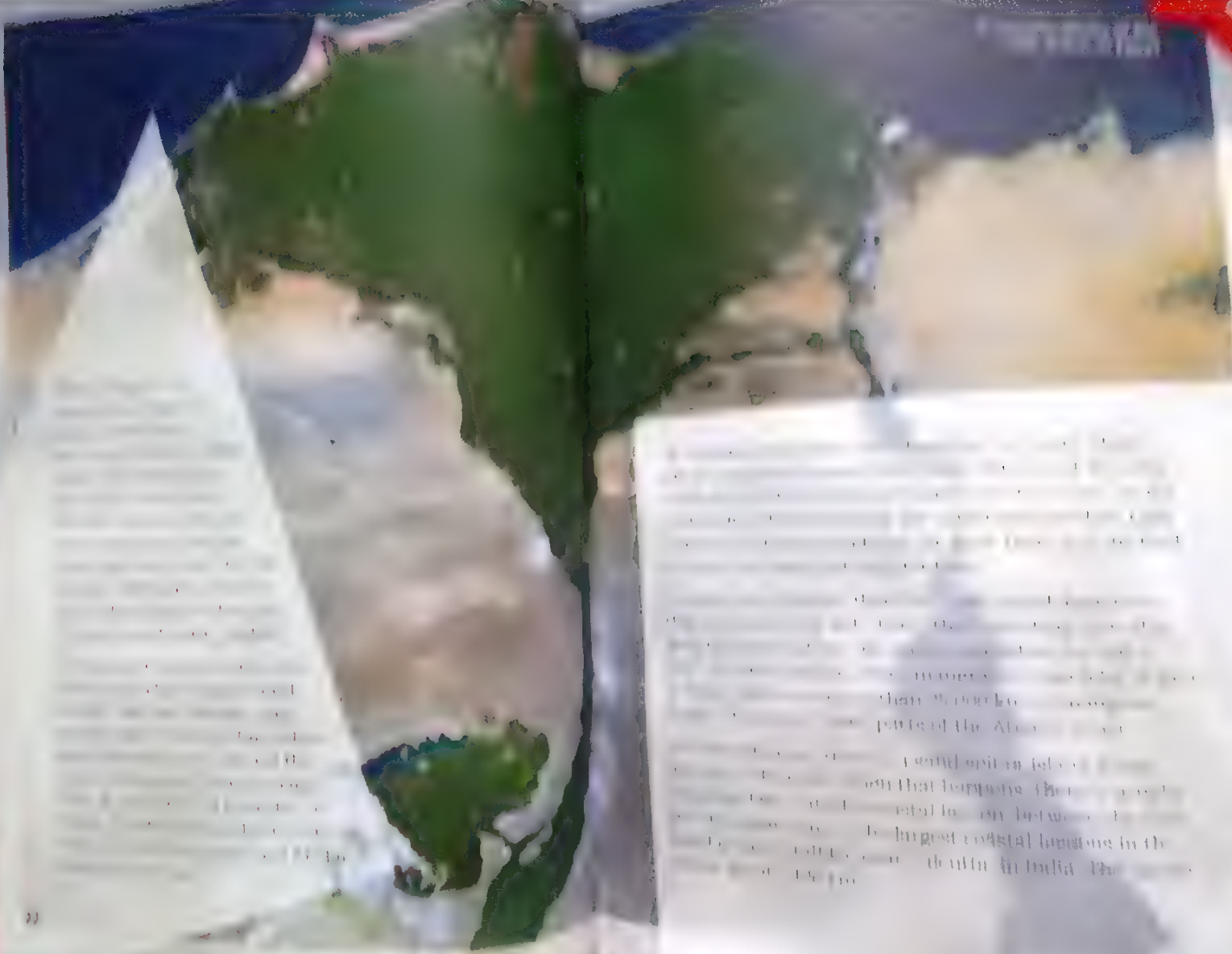
Sand Dune

Sea Stack

Sea Stack

The coastal environment is a dynamic system. The ocean and land interact in a complex way. The ocean provides a source of food and shelter for many organisms. The land provides a source of food and shelter for many organisms. The coastal environment is a dynamic system. The ocean and land interact in a complex way. The ocean provides a source of food and shelter for many organisms. The land provides a source of food and shelter for many organisms.

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Marine Vertebrates

Chapter
6

There are millions of marine animals in the ocean. Some marine animals live underwater. Other marine animals spend some time in the water and some time on land.

Some marine animals are vertebrates. This means they have a backbone inside their body. There are five types of vertebrate fish: mammals, birds, reptiles, and amphibians.

A sea
turtle and
young fish



Reef fish live near coral reefs. There are many different kinds of reef fish. There are lots of colorful reef fish, like yellow tangs and clownfish. Many reef fish are small, so they can hide in small places. There are about 4,000 different kinds of fish in the world.

Oceanic fish spend most of their lives in the open ocean, far from land. Small fish live near the ocean surface, where there is sunlight and lots of algae. Larger fish, such as tuna, eat the smaller fish. Another kind of oceanic fish is the ocean sunfish. It can weigh more than 2,000 kilograms.

Deep sea fish live a long way under the surface of the ocean, where the water is dark and very cold. Many deep sea fish cannot see well, so they use small lights. Some deep sea fish, like lanternfish, go up to the surface of the water at night to look for food.

Fish are
vertebrates
because
they have a
backbone

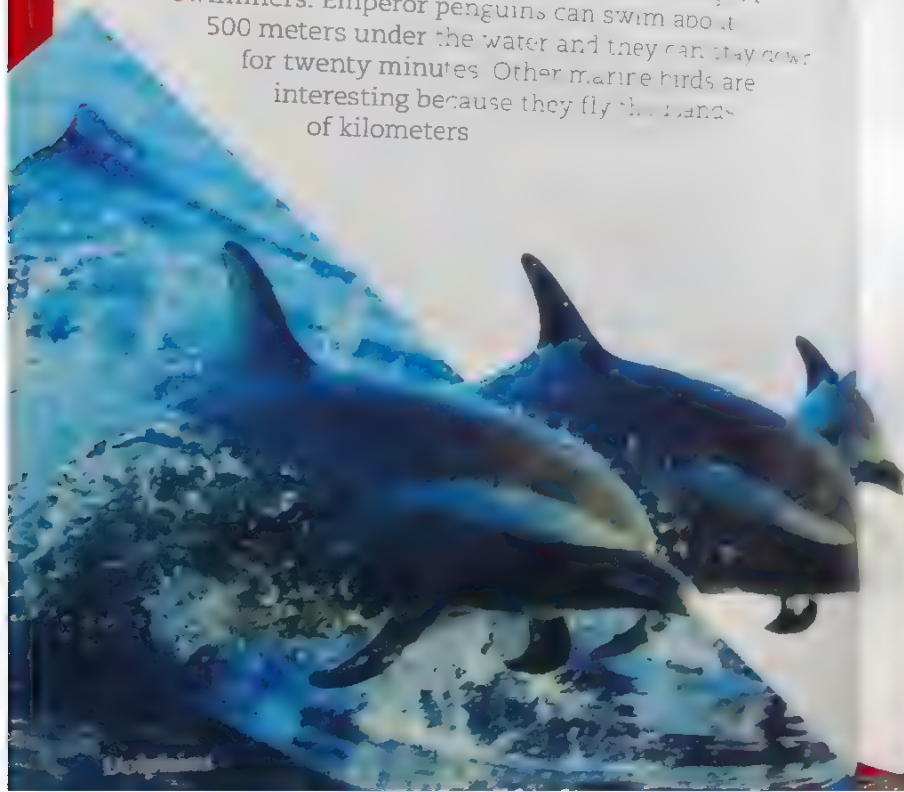


Whales and dolphins live in the water. Whales and dolphins are mammals, so they must hold their breath underwater like people. Dolphins can stay under the water for ten to fifteen minutes, and some whales can hold their breath for two hours.

Seals are marine mammals that spend a lot of time in the ocean, but they often leave the water to sleep. Mother seals also have their babies on land. Many seals can live in cold areas, such as the Arctic and the Southern Ocean. We also find them in warmer water.

Many marine birds eat fish, so they need to be good swimmers. Emperor penguins can swim about 500 meters under the water and they can stay down for twenty minutes. Other marine birds are interesting because they fly thousands of kilometers.

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Marine Invertebrates

Marine invertebrates don't have a backbone. Many of them have shells and some have a shell for protection. There are six main groups of marine invertebrates. They are sponges, cnidarians, echinoderms, worms, mollusks, and crustaceans.



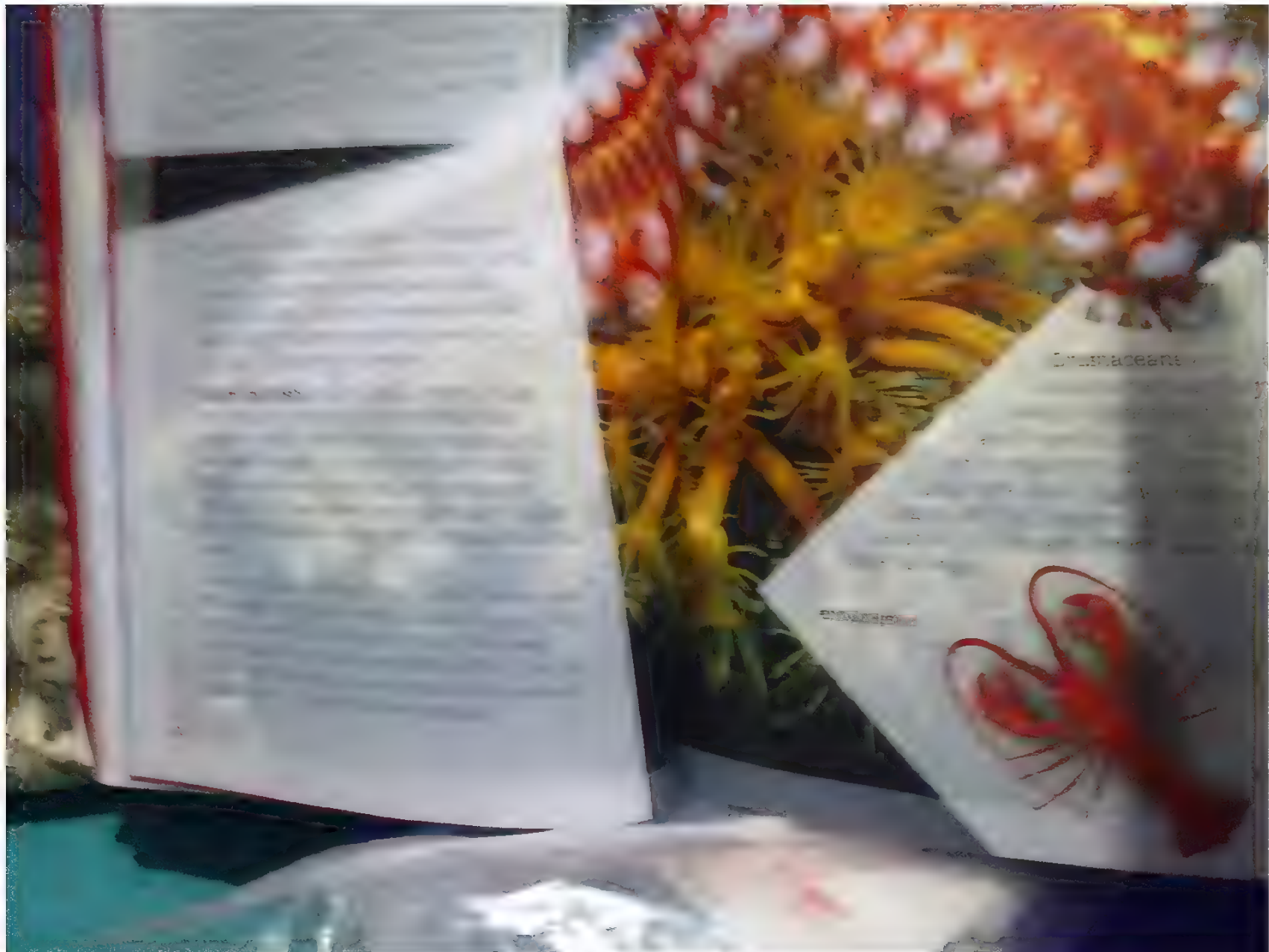
Sponges are very simple animals. They don't have a head or body parts. Sponges eat small living things that float in the water. Some sponges are very small, but there are also giant barrel sponges, and this can be more than 100 meters high.

Cnidarians are simple animals, like sponges, but they have some special body parts, like a mouth with many tentacles around it. The tentacles are poisonous. Cnidarians can use them to catch fish.

Corals and anemones cannot move around. They spend their lives in one place. Corals usually live in coral reefs in large groups called colonies. Anemones usually live on rocks in shallow water near the coast. Jellyfish are different because they can float or swim from one place to another.

Echinoderms have bodies with five equal parts, so they often look like stars or flowers. On the bottom of their bodies, echinoderms have many small, thin feet. Echinoderms use these feet to hold things and pull their bodies around on the ocean floor. Sea urchins also have many long spines for protection.

Sea stars are carnivores, which means they eat other animals. Sea stars often eat other invertebrates, like sponges, corals, and mollusks. Sea urchins are different because they aren't usually carnivores. They are herbivores, so they eat seaweeds, algae, and other types of plants.



Coral Reefs

Coral reefs are home to many things, from simple algae and coral to bigger animals like crustaceans, and fish. About 90% of the world's coral reefs are in the Pacific Ocean, the Indian Ocean, and the Red Sea. The other 10% are in the Caribbean Sea and other warm parts of the Atlantic Ocean.



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Coral reefs grow very slowly, and many years. Some corals have a special red algae that lives inside them. The algae uses sunlight to grow and it makes food for the coral. As coral grows, it makes a white mineral called calcium carbonate. This mineral makes the coral hard, like rock. When old coral dies, new coral grows on top, and the reef slowly gets bigger and bigger.

Special types of green algae grow between pieces of coral. This algae gets hard and helps hold the pieces of coral together. Other marine animals, like sponges, crabs, and snails, also live on coral reefs. When these animals die, the hard parts of their bodies become part of the coral reef.



The first of the islands is a small, rocky islet, about 100 yards long and 50 yards wide. It is covered with a dense growth of tropical vegetation, including palm trees, coconuts, and various other plants. The islet is surrounded by a shallow lagoon, and the water is a deep blue. The islet is the only place on the island where there are any buildings, and it is the only place where there are any people. The islet is the only place where there are any buildings, and it is the only place where there are any people.

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Polar Oceans

Chapter 9

There are two polar oceans. The Arctic Ocean is the smaller one. The Antarctic Ocean is the larger one. Both are very cold. There are many interesting animals and plants that live in these oceans.

The Arctic Ocean is the smallest and coldest. It is about 10 million square kilometers deep. The water is very cold. There are many interesting animals and plants that live in this ocean. We also see many large icebergs. They are very big. They are made of ice that has melted from the glaciers. They are very big. They are made of ice that has melted from the glaciers. They are very big. They are made of ice that has melted from the glaciers.

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Under the Arctic ice, there aren't many plants, but there are lots of small fish and other marine animals to eat. About 60 types of bird also live in the Arctic or spend some time there each part of the year. Many Arctic birds are white or gray, so they can hide easily in the snow. Some examples are Arctic terns and snowy owls.

Some marine mammals live in the Arctic Ocean, such as dolphins and whales. The most common whale in the Arctic is the bowhead whale. It has a long, broad back with a hump. Bowhead whales are unusual because they are white all over. We also find polar bears in the Arctic. They only spend part of their time in the water.

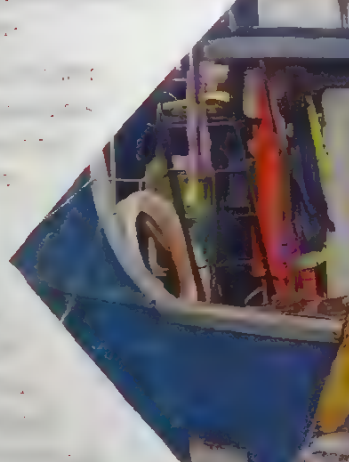
Marine mammals in the Arctic Ocean



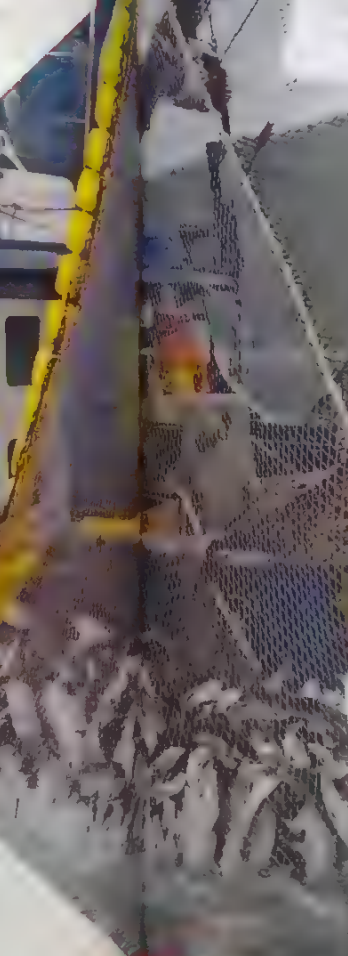
Food from the Ocean

Chapter 10

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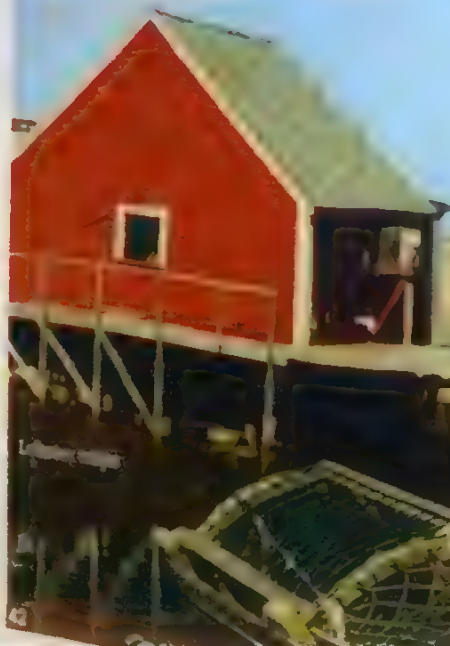
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...nets to
...crustaceans.
...In fact, every
...around the world catch
...million tonnes of
...is the country that catches
...out 40% of the world's total
...Canada and the United States
...every year

...like crabs and lobsters,
...they use special traps in the
...water. The crustaceans go into
...traps and then they cannot get out
...traps to catch molluscs
...



...on fish farms.
...aquaculture. Some fish are
...live outside in large tanks or
...live inside buildings or large tanks of
...water. There are also many different
...farms where the fish live in the ocean, but
...they stay in large fenced areas. On fish farms,
...the fish get lots of food every day so they grow very
...quickly. Some farms keep other marine animals too,
...such as crustaceans and molluscs.

...seaweed is an important food and
...there are many farms that grow special types of seaweed.
...people eat. Kombu and nori are the most usual.
...in Japan, China, Korea and other Asian countries.
...many people make dishes with kombu and nori, because
...they are very healthy. In Japan, people use lots of nori to
...make sushi and other Japanese dishes.



Oceans and Energy

Chapter
11

There are many ways to get energy. In the United States, we use a lot of energy to run our homes and cars. Some energy comes from the sun, and some comes from under the ocean floor. With modern technology, we can also get lots of clean energy from wind, waves, and tides.

Oil and natural gas that we use to run our cars and homes are found on the ocean floor. We use lots of oil to make plastic and other things. We often use natural gas to heat water, cook our food, and keep our homes warm in winter. We can also use oil and natural gas to make electricity.

When we need oil and natural gas, we go to the ocean floor. Under the ocean floor, we build offshore platforms. From these platforms, workers make a very deep hole in the ocean floor. After that, they can bring the oil or natural gas up to the surface of the ocean. Large boats called tankers take it to land.

Some oil and natural gas is found on land. But a lot of it is found under the ocean floor. We use oil and natural gas to make many things, like plastic and gasoline. We also use them to make electricity. It's important to find new ways to get energy because we need a lot of it.



An offshore platform and tanker

When offshore platforms are near the shore, they can build long underwater pipes to bring the oil and gas to land. Underwater pipes are safer than tankers because waves and bad weather don't affect them. Tankers can also hit things in the ocean, like other boats.

As well as coal and gas, we can get energy from ocean, wind, waves and tides. These types of energy are clean, and they don't make any pollution. They are also renewable because we can use them again and again.

Offshore wind farms have many towers with turbines at the top. The turbines have long blades that turn in the wind and this makes electricity. Then underwater cables carry the electricity to the land. One of the largest wind farms in the world is the London Array, in the Thames Estuary in England. It has 175 turbine towers.

There are also turbines that use waves to make electricity. Some turbines use waves that break on the beach. Other turbines are in deep water, where they go up and down with the waves. One of the biggest wave parks in the world is near Porto, in Portugal, and there are plans for more wave parks in the future, in the UK and the US.

We also use ocean tides to make electricity. We can collect water at high tide and let it out at low tide. When the water is let out it turns turbines and makes electricity. We can also build underwater turbines with long blades that turn when the tide goes up and down. There are plans for a new tide park in Scotland that could make electricity for 175,000 homes.

In the future, ocean currents, such as the Gulf Stream in the Atlantic Ocean, could also make a lot of electricity. We could build turbines under the ocean, or they could float in the ocean like boats.

Scientists at the University of Florida think the Gulf Stream could make enough electricity for millions of homes.

Wind turbines on offshore towers

...the world's oceans are becoming more acidic. This is because of the increasing amount of carbon dioxide in the atmosphere. The oceans absorb about a third of the carbon dioxide that we put into the air. As the oceans absorb more carbon dioxide, they become more acidic. This is bad for many of the animals that live in the oceans. For example, many of the animals that live in the oceans are made of calcium carbonate. When the oceans become more acidic, the calcium carbonate dissolves. This means that the animals that live in the oceans are having a hard time growing and surviving. Scientists are trying to find ways to clean up the oceans and take care of the animals that live in them. For now, we need to stop putting so much carbon dioxide into the air. If we don't, the oceans will become even more acidic, and many of the animals that live in them will die.

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1. Sunlight heats the Earth and the atmosphere
2. Carbon dioxide and other gases in the atmosphere hold in the heat
3. The Earth's temperature goes up

Read pages 6 to 9.

Answer the questions.

- How much of Earth's surface do the oceans cover?
About 70%.
- What percentage of Earth's water is salt water?
About 97%.
- Which ocean is between Africa and Australia?
The Indian Ocean.
- Which ocean is the smallest?
The Arctic Ocean.
- What do we call a shallow area of ocean next to a continent?
A continental shelf.
- How far under the water is Challenger Deep?
About 11,000 meters.
- How much of Mauna Kea is under the ocean?
About 5,800 meters.
- Where is the longest mountain range on Earth?
Under the Atlantic Ocean.

Read pages 10 to 16.

Are these sentences true or false? Write T or F.

- The water at the surface of the ocean becomes cooler at night. ☐ T
- Cold currents move from the tropical zones to the polar zones. ☐ F
- When the water vapor in the air gets colder, it evaporates. ☐ F
- Ripples are big waves that keep moving when the wind stops. ☐ F
- In hurricanes, the largest waves can be over 100 meters high. ☐ F
- Tsunamis get much higher when they come to shallow water. ☐ T
- Earth's tides depend on the gravity of the Sun and the Moon. ☐ T
- Spring tides are very high tides that only happen in spring. ☐ F

Read pages 17 to 23.

Complete the descriptions with words from the box.

delta atoll giant kelp headland seagrass seaweed wetland

- It looks like a plant but is an algae. seaweed
- It is a very small algae that can have many different shapes. atoll
- It is an underwater plant that has leaves, roots and flowers. seagrass
- It is a special type of algae that can be 65 meters long. giant kelp
- It is a low, flat area where water covers most of the land. wetland
- It is a high, rocky coastal area that goes out into the water. headland
- It is a V-shape that forms where some rivers meet the ocean. delta

Read pages 24 to 31.

Match the beginnings and endings of these sentences.

- | | |
|---|---|
| 1. A vertebrate is an animal... | a. but they spend their lives in the water. |
| 2. Sardines are coastal fish... | b. that don't have a head or body parts. |
| 3. Whales and dolphins look like fish,... | c. that move in groups called schools. |
| 4. Sea turtles and snakes need air... | d. but they are marine mammals. |
| 5. Sponges are simple animals... | e. that has a backbone inside its body. |
| 6. Echinoderms are invertebrates... | f. that often look like stars or flowers. |

Read pages 32 to 39.

Check the best answers.

- Coral grows best in water that...
 - is shallow and warm ☒
 - is warm and deep ☐
 - is shallow and cold ☐
- Calcium carbonate is a white mineral that...
 - makes food for coral ☐
 - makes coral bigger ☐
 - makes coral hard ☒
- Atolls are islands that sometimes form...
 - in the Indian Ocean ☐
 - in polar oceans ☐
 - on underwater mountains ☒
- The Great Barrier Reef is about the same size as...
 - Australia ☐
 - Germany ☒
 - The Maldives ☐
- The Arctic Ocean is... than the Southern Ocean.
 - smaller and shallower ☒
 - larger and deeper ☐
 - deeper and colder ☐
- The Ross Ice Shelf is...
 - 240 km long ☐
 - on the coast of Antarctica ☒
 - 4,770 meters deep ☐
- Beluga whales are unusual because they...
 - have long tusks ☐
 - eat dolphins ☐
 - are all white ☒
- Krill are an important food...
 - for whales ☒
 - for polar bears ☐
 - for snowy owls ☐

Read pages 40 to 47.

Complete the sentences with words from the box.
 forms nets park pipelines platforms seafood traps turbines

- Fish is about 84% of all the seafood that we catch and eat.
- Most fishing boats use large nets or long lines to catch fish.
- Some fishermen leave traps with food inside to catch lobsters.
- On some fish forms, the fish live in lakes or large tanks of water.
- We can build offshore platforms to get oil from under the ocean.
- Underwater pipelines can carry oil more safely than tankers.
- Wind turbines have long blades that turn to make electricity.
- They are building a large tide park in the ocean near Scotland.

Read pages 48 to 53.

Answer the questions. Suggested answers.

- Why should we help conservationists to protect the oceans?
Oceans are important to all life, including plants, animals, and people.
- How does acid rain affect the oceans?
Acid rain damages marine life, especially coral, algae, and mollusks.
- How much plastic do we put into the ocean every year?
We put more than eight million tonnes of plastic into the ocean every year.
- Why is there so much carbon dioxide in the air now?
We are burning a lot of oil, gasoline, and natural gas.
- How do higher temperatures make the oceans deeper?
When temperatures are higher, lots of polar ice melts and becomes water.
- What happens to coral when the water gets too warm?
The coral becomes unhealthy and it can die.

1 Are these sentences true or false? Write T or F.

- The areas near Earth's poles usually get more sunlight. ☐ F
- Strong winds and temperature changes can make currents. ☐ T
- There are more hurricanes in places where the ocean is cold. ☐ F
- When a hurricane comes to land, there are often floods. ☐ T
- When there is a big tsunami, it can cause earthquakes. ☐ F
- Seagrass grows where the water is shallow. ☐ T
- Seaweed and diatoms are different types of algae. ☐ T
- We need algae because it gives us lots of carbon dioxide. ☐ F

2 Read the sentences and circle the correct words.

- Waves can erode holes in rocky headlands and create sea arches / cliffs.
- Winds can create sand bars / dunes when they move the sand on beaches.
- In estuaries / wetlands, river water meets with salty water from the ocean.
- Coastal spits / lagoons are lakes that form at the end of some estuaries.
- Oceanic / Reef fish are often small, so they can hide easily in small places.
- Seals are mammals, so they can't / mus hold their breath under water.
- All crustaceans / worms have a special shell called an exoskeleton.

3 Answer the questions. Suggested answers.

- Which two oceans have the most coral reefs? Why?
The Pacific and Indian oceans have the most coral reefs.
The water is warmer there.
- Why do many marine animals live near coral reefs?
The reef protects them from waves and there is lots of algae to eat there.

3. Why are many Arctic birds and mammals white?
It is difficult to see white animals in the snow and ice, so they can hide more easily.

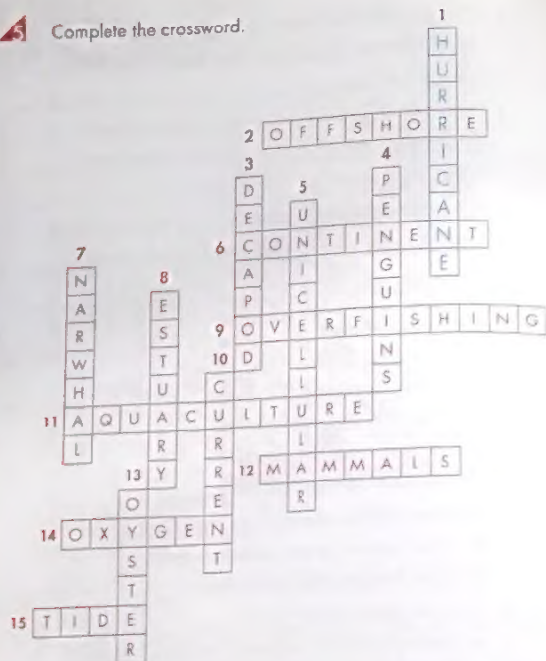
4. Why aren't there many plants in the Southern Ocean?
The Southern Ocean is very deep and dark, and the water is also very cold.

5. Which fishing boats can stay away for a long time? Why?
Bigger boats can stay away longer because they have large refrigerators.

4 Check the best answers.

- About 30% of our oil and gas...
 a. comes from clean energy. ☐
 b. comes from under the ocean floor. ☒
 c. is in large boats called tankers. ☐
- The electricity from offshore tide parks...
 a. moves turbines when the tide goes down. ☒
 b. makes a lot of air and water pollution. ☐
 c. travels through underwater cables. ☐
- The Gulf Stream current could...
 a. make electricity for millions of people. ☒
 b. float in the ocean like a big boat. ☐
 c. use the wind to make energy. ☐
- Some oil spills happen when...
 a. people throw waste into the water. ☐
 b. there are problems on offshore platforms. ☒
 c. water gets into tankers and pipelines. ☐
- The carbon dioxide that we put into the air...
 a. makes our oceans and planet too warm. ☒
 b. causes more hurricanes in polar zones. ☐
 c. can make coral reefs grow too fast. ☐

4 Complete the crossword.



Across

2. in the ocean, but near the coast
6. a very large area of land
9. when people catch too many fish
11. keeping fish on a farm
12. whales, dolphins, and seals
14. a gas that we need to live
15. when the ocean goes up and down

Down

1. a big, dangerous storm
3. any crustacean that has ten legs
4. black and white birds
5. with only one living cell
7. a whale that has a long tusk
8. where a big river meets the ocean
13. a mollusk that has a hard shell

- affect make something change
 algae very simple plants without leaves
 area a part of somewhere
 backbone the big bone that goes down the back of an animal
 breath the air that goes into a mammal's body
 bristle short, thick hair
 cable thick strong metal for carrying electricity
 cliff high rock with a very steep side
 climate the weather in a place
 coast the land beside the ocean
 conservation protecting the environment
 continent a large area of land
 cover go over something
 current the movement of water across an ocean
 damage break something
 earthquake when the ground moves
 energy something that can give power
 equal the same as
 erode make something smaller, little by little
 float stay on the surface of the water
 flood a lot of water covering an area
 garbage things that people throw away

gas like air; not solid or liquid

gravity this pulls things down towards the ground

grow get bigger

lake a large area of water

mammal an animal that has live babies

melt change from ice to water

microscope something that can make small things look larger

mineral a natural thing that we find on or under the ground

mountain a high place

net material with holes for catching fish

oil a thick liquid used as a fuel

pipeline a long metal or plastic thing that oil or gas can go through

planet a large round thing which goes around a star

plastic a light, often colored, material made from oil

poisonous can cause sickness or death

polar bear a large white mammal that lives in the Arctic

pollution making water, land, or air dirty

reptile an animal that has cold blood and lays eggs

root the part of a plant that is in the ground

sand very small pieces of rock

segment a part of something

shallow not deep

shell the hard outside part of some animals

shine the sun shines

snake a long, often dangerous, reptile with no legs

solid waste garbage that is hard, not liquid

spill flowing outside of a container or pipe

spine a sharp part on the outside of a plant or animal

storm very bad weather with strong winds

surface the top of something

tank a large thing that holds water

tide the rise and fall of the ocean every 12 hours

trap something for catching animals

turtle an animal with a shell that lives in the ocean

tusk a very long sharp tooth

vapor in the form of a gas

wave a high line of water that goes across an ocean

whale a very large mammal that lives in the ocean